

# “e-Z throttle”

***Smooth locomotive acceleration and braking with high torque at extreme slow speed!***

## Analog locomotive speed controller (Battery operated, for Z scale)

The “e-Z throttle” speed controller allows smooth acceleration and braking, with large torque even at extreme slow speeds. The controller uses a single 9V battery (not included).

### Instructions for use:

#### 1. First steps

Set the direction switch (A) to the central position (Off). Remove the battery cover on the back of the device and insert a 9V battery (not included). Connect wires to the track.

#### 2. How to run the locomotives

Set the direction switch (A) to central position (Off); turn the speed control knob (B) counter-clockwise to the lowest position (stop). Place the locomotives on your layout. Select the desired direction with the direction switch (A). Turn the speed control knob (B) clockwise to begin to accelerate, then counter-clockwise to decelerate and stop. To save battery life, when not operating the locomotive for a long time, always turn the direction switch to central position.

#### 3. Troubleshooting:

A common problem with all analog and DCC systems is the locomotive's pickup. Keep the wheels and track surfaces clean. Intermittent and jerky operation is often caused by an oxide coating forming on the track or the wheels. If you have problems, always check the track and wheels first and make sure they are clean.

#### If the locomotive does not move and ...

##### a) the overload LED(C) does not light

- no battery, or battery is low.
- contact wires are not properly attached to the track or the locomotive's pickups are not making connection.

##### b) the overload LED(C) lights

- a continuous overload (short) was detected. After the short is resolved, and the device cools off, the unit will switch back on again.

#### 4. Technical features:

Analog control: Pulse width modulation (PWM)

Input voltage: 9V battery.

The device is protected against thermal overload.

